

## Committee Handout

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# All-Terrain Vehicle (ATV) Design: Understanding Design and ATV Safety

# All-Terrain Vehicles Relevant to Our Discussion



3-Wheeler  
Production  
banned in  
1985



4-Wheeler  
Sport ATV



4-Wheeler  
Utility ATV

# Not All Tires are Created Equal



Well inflated automobile tires with good tread are designed to GRIP and RELEASE the road surface to help maintain control of the vehicle



**Automobile Tires**

Under-inflated, knobby ATV tires are designed to handle uneven, rough off-road surfaces. To do this the tires do not grip well.



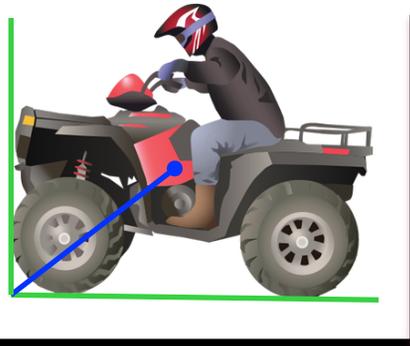
On roads, they can unexpectedly GRAB the surface or they can LOSE TRACTION. Either can cause the operator to lose control of the ATV and crash.



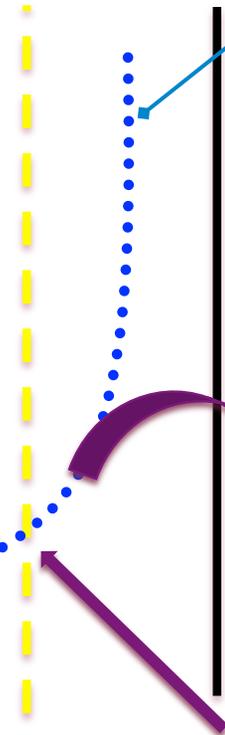
**ATV Tires**

# Why is riding on the road especially dangerous?

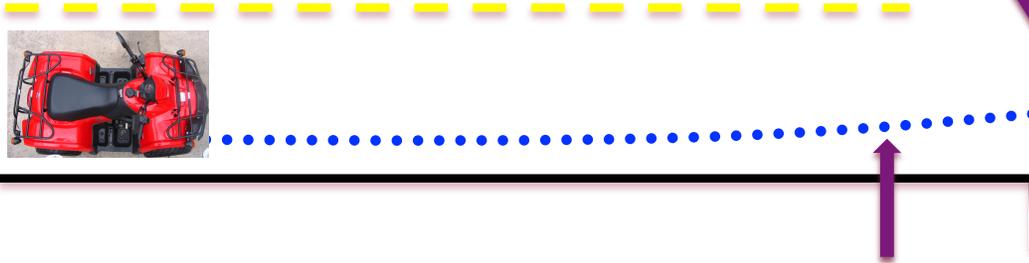
The mid-engine placement and exaggerated ground clearance of ATVs significantly raises the vehicle's center of gravity. So rollovers can occur at speeds well below roadway speeds.



Typical turning path for a car



ATVs need a wider turning radius than passenger vehicles for the same speed.



ATVs are tuned for low end power on loose ground. Drivers often over-accelerate when on pavement.

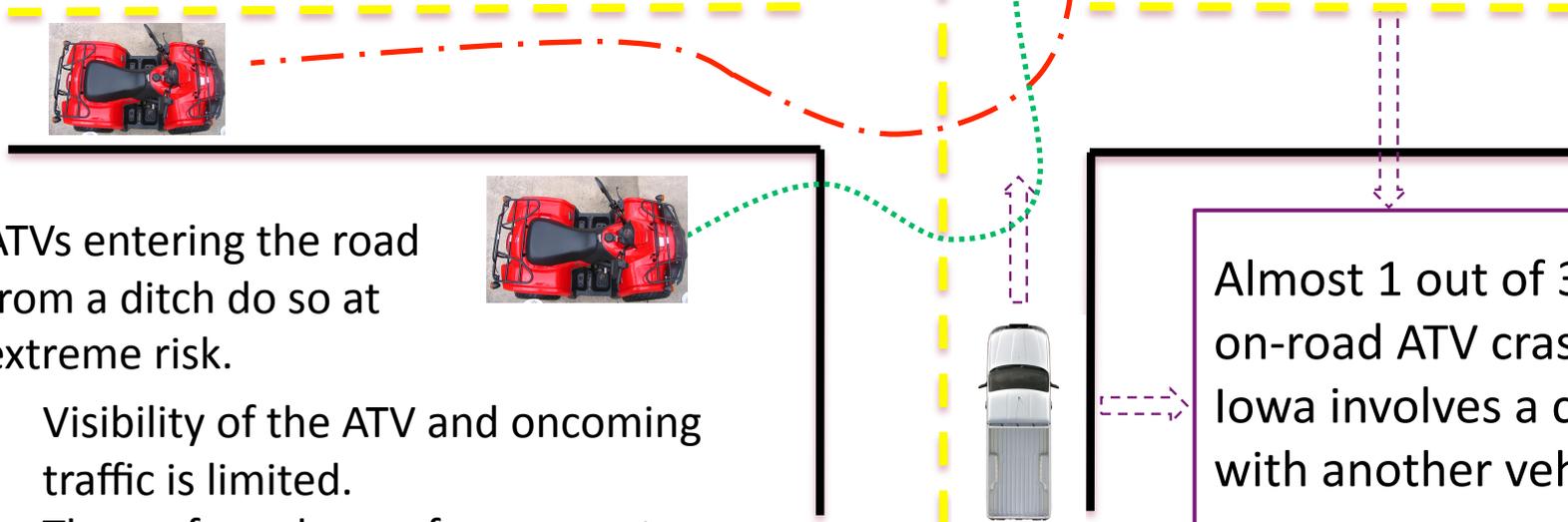
The safe speed in a turn depends on turning radius, tire-surface traction, and size of operator vs. size of ATV.

**Different models of ATVs have different stabilities, so a safe speed for one is not a safe speed for all.**

# Why is riding on the road especially dangerous?

"Allowing unlicensed, uninspected ATVs [on roads] with other vehicular traffic is a recipe for disaster."  
-Pennsylvania Forest Coalition Coordinator

Slower turns at wider angles is necessary but can contribute to collisions.



ATVs entering the road from a ditch do so at extreme risk.



Visibility of the ATV and oncoming traffic is limited.  
The surface change from grass to gravel to pavement compounds problems.

Almost 1 out of 3 on-road ATV crashes in Iowa involves a collision with another vehicle

## **Fundamental Principle of Injury Prevention**

Making it easier to do the SAFE thing  
Decreases deaths and injuries

Making it easier to do the UNSAFE thing  
Increases deaths and injuries

## **Fundamental Principles of Safety Laws**

Make them evidence-based.

Make sure people know the law.

Keep the laws simple and enforceable.

## **Fundamental Assumption by Citizens**

People look to laws and regulations to know what is safe and  
what is responsible behavior.

People will assume if it's legal it must be safe.

Assuming something is safe when it is not  
can contribute to deaths and injuries

# Stakeholder Groups Warn Against Riding ATVs on the Road



## **POSITION IN OPPOSITION TO ON-ROAD OPERATION OF ATVs**

The Specialty Vehicle Institute of America (SVIA) is the national not-for-profit trade association representing manufacturers and distributors of all-terrain vehicles (ATVs) in the United States. SVIA's major goal is to promote the safe and responsible use of ATVs.

Americans are enjoying ATVs in rapidly increasing numbers and using them responsibly for both work and play. Tens of millions of ATV users ride their ATVs in a safe and appropriate manner every day. They are tremendously useful products and have become an essential tool for farmers, law enforcement officials, military and others. Unfortunately, with this increased popularity has come an increase in estimated ATV-related accidents.

The majority of accidents and injuries are caused by misuse of the ATV. 92% of ATV-related fatalities involve behaviors that the Industry warns against in its rider education programs, in all literature and on vehicle labels. These behaviors include children riding adult-sized ATVs, operating on paved roads, operating without a helmet or other protective safety gear, carrying passengers on single-rider ATVs and operating under the influence of alcohol.

ATVs are designed, manufactured and sold for off-road use only. On-road vehicles must be manufactured and certified to comply with U.S. Department of Transportation Federal Motor Vehicle Safety Standards (FMVSS). These safety standards consist of extensive and detailed compliance requirements. Since ATVs are not intended to be used on-road, they are not designed, equipped or tested to meet such standards.

Permitting street use of ATVs, including modified ATVs, would be in conflict with manufacturers' intentions for their proper use, and would be contrary to federal safety requirements.

U.S. Consumer Product Safety Commission (CPSC) statistics show that between 1997 and 2002, 40% of ATV fatalities involved operation on paved roads, despite the fact that vehicle labels and owner's manuals clearly warn against such use.

Riding on public roads introduces the possibility of the ATV colliding with a car or truck, an obviously dangerous situation. Another CPSC study of 3,200 ATV-related deaths that occurred between 1985 and 1996 found that the most frequently reported hazard pattern (56% of all ATV incidents) involved collisions and 35% of these involved collisions with motorized vehicles.

SVIA emphasizes that ATVs are not designed, manufactured, or in any way intended for use on public streets, roads or highways and urges that on-highway use of ATVs be prohibited and that law enforcement efforts be strengthened to eliminate this dangerous practice.

The Consumer Product Safety Commission (CPSC) mandates warning labels for those riding behaviors that are the major contributors to ATV-related deaths and injuries.

Below are several examples:

 **WARNING**

**Improper use of ATVs can cause SEVERE INJURY OR DEATH.**

			
<b>ALWAYS USE AN APPROVED HELMET AND PROTECTIVE GEAR</b>	<b>NEVER USE ON PUBLIC ROADS</b>	<b>NEVER CARRY PASSENGERS</b>	<b>NEVER USE WITH DRUGS OR ALCOHOL</b>

**NEVER** operate:

- without proper training or instruction
- at speeds too fast for your skills or the conditions
- on public roads - a collision can occur with another vehicle
- with a passenger - passengers affect balance and steering and increase risk of losing control

**ALWAYS:**

- use proper riding techniques to avoid vehicle overturns on hills and rough terrain and in turns.
- avoid paved surfaces - pavement may seriously affect handling and control

**LOCATE AND READ OWNER'S MANUAL.  
FOLLOW ALL INSTRUCTIONS AND WARNINGS.**

**⚠ WARNING**

**IMPROPER TIRE PRESSURE OR OVERLOADING CAN CAUSE LOSS OF CONTROL! LOSS OF CONTROL CAN RESULT IN INJURY OR DEATH!**

**OPERATING TIRE PRESSURE: SET WHEN TIRES ARE COLD: MAX FRONT: 11.5 PSI  
MAX REAR: 11.5 PSI**

Never set tire pressure below minimum. It could cause the tire to dislodge from the rim.

**MAXIMUM VEHICLE LOAD: 145 LBS**

**⚠ WARNING**

**NEVER RIDE A PASSENGER!**

**PASSENGERS CAN CAUSE A LOSS OF CONTROL, RESULTING IN INJURY OR DEATH**



**⚠ WARNING**

**ADULT SUPERVISION REQUIRED!**

**! WARNING !**

THIS VEHICLE IS AN ALL-TERRAIN VEHICLE AND IS NOT INTENDED FOR USE ON PUBLIC HIGHWAYS / CE VÉHICULE EST UN VÉHICULE TOUT TERRAIN ET QU'IL N'EST PAS DESTINÉ À ÊTRE UTILISÉ SUR LES CHEMINS PUBLICS.

**⚠ WARNING**

**Improper use of this ATV can result in severe Injury or Death**



Always use an approved helmet and protective gear. Never use on any public roads. Never carry a passenger. Never use with drugs or alcohol.

- Never permit a child under the age of 4 to operate the ATV.
- Overloading can adversely affect vehicle handling.
- Operator use only, passengers prohibited.
- This vehicle is designed and manufactured for OFF-ROAD use only.
- Operation on public streets, roads or highways is illegal.
- Always wear a helmet and other protective equipment.
- DO NOT operate the vehicle after consuming alcohol or drugs.
- Gasoline is flammable. Shut off engine, avoid sparks and open flames when refueling.
- Read owners manual carefully before riding.



# RAPID RESPONSE

## ATV Safety In The News

A Project of  
the U.S. Consumer  
Product Safety Commission

Quick Facts For a Safer Ride

Just this week there was a death or serious injury in your community involving an all-terrain vehicle (ATV). As you continue to report about this tragedy, the U.S. Consumer Product Safety Commission (CPSC) encourages you to use this teachable moment to share critical safety information with your audience.

Each year since 2004, nearly 800 Americans have died in ATV-related incidents. Another 140,000 are injured on average each year. Many ATV-related deaths and injuries are preventable, and by providing safety information to riders in the aftermath of this incident, we can work to drive down the number of incidents in your community.

By incorporating safety tips into your story now, such as those to the right, your reporting could help save a life.

### Important Facts:

- ATVs are not toys! They are powerful and potentially dangerous vehicles.
- Adult ATVs can travel at more than 60 miles per hour and can weigh nearly a half ton; youth ATVs are made to travel at lower speeds that are more appropriate for children's ages and skills.
- ATVs can easily tip over and roll. The unpredictable nature of off-road conditions makes training and proper use essential.

For more information about ATV safety, state legislation, and national and state data, please visit [www.ATVSafety.gov](http://www.ATVSafety.gov). To speak with a CPSC spokesperson, please call (301) 504-7800.

**Do Not Drive ATVs on Paved Roads**

ATVs are designed to be driven only on off-road terrain; they should not be driven on paved surfaces. ATVs have solid rear axles and no rear differential, which makes turning on pavement difficult and dangerous; one tire will actually skid when making a turn.

ATVs on paved roads are at risk of hitting or being hit by cars and other vehicles. While passenger vehicles contain safety features designed to protect occupants from collisions, ATVs do not.

If struck by other vehicles, ATV riders can be killed or severely injured.

For these reasons, CPSC recommends never driving on public roads. In addition, some states and local areas prohibit ATVs and other off-road vehicles on public streets and highways.





For information, contact: (949) 727-3727 ext. 3091

## Fact Sheet

### The ATV Safety Institute's Golden Rules

1. Always wear a helmet and other protective gear.
2. Never ride on public roads – another vehicle could hit you.
3. Never ride under the influence of alcohol or other drugs.
4. Never carry a passenger on a single-rider vehicle.
5. Ride an ATV that's right for your age.
6. Supervise riders younger than 16; ATVs are not toys.
7. Ride only on designated trails and at a safe speed.
8. Take an ATV *RiderCourse*; visit [www.atvsafety.org](http://www.atvsafety.org) or call toll-free (800) 887-2887.

10/07

Subject: ATV Bill HF169  
Date: Monday, April 15, 2013 1:18 PM  
From: AUTO MEDIC <automedic@southslope.net>  
To: <joe.bolkcom@legis.iowa.gov>  
Cc: <gerene-denning@uiowa.edu>  
Conversation: ATV Bill HF169

Senator Bolkcom, My name is Marck Dudrey I am Director and Webmaster for Lakeview OHV and Lakeviewohv.com I am concerned on the passing of allowing ATV's on public streets and as hard as it may be to believe I do NOT support the Bill, I agree with my friends at The University of Iowa trauma Dept. that roadways and ATV's do not mix, for a number of reason's. I have ridden off road for 20+ years and could testify to the inability of a four wheeler to take a high speed turns, the strength it takes to keep under control at all times, and being most ATV's do not have horns, turn signals, DOT approved tires, and most ATV's have what are called balloon tires where the tire circumference is twice the size of the rim, this gives the operator a softer ride but if the normally 2 ply tire should blow out most people could not control the unit from a rollover at a speed greater than 25mph, also so far Iowa does not require helmets for motorcyclists would this be a requirement? There are things that the Department of transportation requires on even a moped that ATV's are not equipped with. If I could help you on any feedback you might be interested in please let me know.

Thanks

Marck Dudrey  
Lakeview OHV  
Lakeviewohv.com

## Concerned Families for ATV Safety

United to prevent child ATV death and injury

### Dear Iowa Legislators:

Concerned Families for ATV Safety is a national nonprofit group made up of parents who have lost children in ATV crashes. We are devoted to protecting the lives and wellbeing of kids when it comes to ATV's. Injuries are the leading cause of death to children in America, and most of these tragedies can be prevented through common sense actions and safety-based public policies.

So many times we hear the words, "If only I had known" when it involves a child or teen and an ATV. Most people are unaware of how dangerous ATVs can be, especially when driven by children who aren't even old enough to drive a car. ATVs are also very dangerous for teen operators who might be old enough to drive but still need time to grow up and learn.

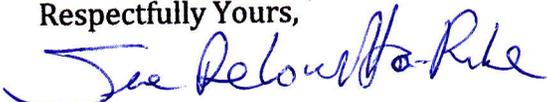
Over one hundred children are seriously injured everyday and approximately one dies every other day in an ATV crash. The age group with the highest number of ATV reported deaths from 1982-2008 were 14-17 year olds. In fact, ATV riding has the highest risk of hospitalization among the 33 sports and activities that children routinely participate in, including football. Every year injuries to children from ATV crashes cost society over 3 billion dollars in medical and other costs. These and other safety statistics should be fully considered before allowing ATVs to be ridden on public roadways.

ATV's are "off road vehicles". They have tires that don't work well on road surfaces and a narrow wheelbase that creates a high center of gravity. Together, these make ATVs extremely unstable and likely to roll over. Higher speeds on the road increase this instability. One of the leading causes of death and injuries for all age groups are rollovers. ATV's are also often heavy machines with no protection around them. More than 9 out of 10 crashes with children and teens are on adult-size machines. So when they are involved in a crash it's usually a serious one, especially if they are hit or pinned by the ATV.

Allowing ATV's to be driven on the road is not responsible and too many people will assume that if it's legal then it's OK. But when a family loses someone they love, their lives are changed forever. Please don't do something that may increase these tragedies.

Be smart and keep ATV's where they belong, off the roads and on the trails!

Respectfully Yours,



Sue DeLoretto-Rabe  
Concerned Families for ATV Safety  
[www.atvsafetynet.org](http://www.atvsafetynet.org)

## ATV-RELATED DEATHS ON THE ROAD

Stories from the website for Concerned Families for ATV Safety  
See <http://atvsafetynet.org/>

[http://www.atvsafetynet.org/stories\\_dunn.html](http://www.atvsafetynet.org/stories_dunn.html)

Jamie Dunn

My name is Kim Motes. Thursday February 28, 2007 started out like any other day. I went to work. The kids went to school. They came home from school, and were doing "kids stuff." Jamie had called me and asked if he could ride the 4 wheeler over to a friend's house, I told him "no," we said our goodbyes and our love you's (which we always did, no matter what!), and hung up the phone.

I never imagined that would be the last conversation I would ever have with my son.

He decided to go anyway, he told his brother he would be back in a few minutes, and then he was gone. Next thing I know, I am receiving a phone call from a friend who had driven upon an accident, in which a young teen had been struck by a car... it was my son! And I couldn't get there fast enough. He was in critical condition. He was taken by helicopter to the nearest trauma center. He had extensive internal injuries, and injuries to his brain.

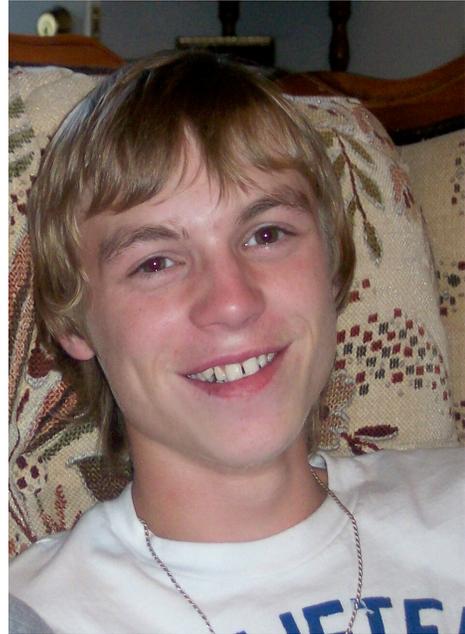
We prayed all night long for a miracle. I never left his side.

Even at 2:00 in the morning I was sitting next to him with my head lying on his chest. I could hear him breathing, and I could hear his heart beating, but it wasn't him doing it; it was the machines.

The following morning at 10:40 he was pronounced dead. Our lives were shattered in a million pieces, and we are still trying to find those pieces today.

Jamie was a great kid. He was always doing something to make you laugh, and he loved to play the guitar. He could sing really well too. He is missed greatly by his family, especially Jonathan, Trey and Shelby. He was "big Bubba," and their eyes sparkled whenever they looked at him, He has so many friends, he is missed by so, so many. We donated Jamie's organs and 3 lives were saved because of him.

Jamie taught me one thing and that is to live each day to the fullest, and to love with all your heart. I hope you are catching some big fish up there in Heaven, and I can't wait till I can see that big ole country boy grin of yours. I love you so much, baby boy! Love, MOM



[http://www.atvsafetynet.org/stories\\_smith.html](http://www.atvsafetynet.org/stories_smith.html)

Bryan Paul Smith

Bryan Paul 'B.J.' Smith, Jr. was born on June 15, 1990 in a small town in south central Louisiana. He grew up an only child and we loved and spoiled him from the beginning. He and his dad had a passion for motorcycles and rode almost every day. He didn't have an ATV of his own but had ridden with friends and family many times before.

August 8, 2005 was a day of great tragedy and sadness for us. While visiting family in Houston, BJ & his cousin decided to ride his uncle's new ATV. Even though the boys had been told not to go near the ATV, they took it out anyway. They ventured out into the neighborhood to show off for some friends. BJ was not wearing a helmet or other safety gear and had never had an ATV instruction course. With nothing but open road before him, BJ gunned the 4-wheeler to almost 60 mph - then a dog ran out and clipped the front wheel. BJ's life was changed forever. The ATV spun out of control and he was thrown 25 feet, landing on the road head first. One of the boys watching immediately called 911. He later said BJ had blood pouring from his eyes, ears, nose and mouth and was making a terrible gurgling sound. He was instructed to turn him on his side and wait for the ambulance.



On the way to the hospital, paramedics were unable to sustain BJ and we were later told by the ER doctor that he was brought in 'dead on arrival'; however, lifesaving measures were continued - he underwent emergency brain surgery and spent 3 weeks in a coma/life support in Neurotrauma. His diagnosis was severe traumatic brain injury, but he also sustained a broken collar bone, broken ribs, punctured lung, lacerated liver and severe road burn on his arms, legs and back.

During his five and a half month hospital stay he endured a total of four brain surgeries, numerous infections, seizures, memory loss and a stroke. He had to relearn how to walk, talk, eat and dress himself. For the remainder of his life he will deal with permanent, partial blindness. A year after the accident, at the age of 16, his academic level was that of a 5th grader. Since then he has improved, but he will never be the same again. The year before BJ's accident he excelled academically and with encouragement from his coach, he was pursuing a future in football. He will never again play football and it is doubtful he will ever get a driver's license. I have had to watch my son regress emotionally at times to that of a 6 year old. It's the most heartwrenching thing to live through.

If you have kids under 16 - PLEASE keep them off of these powerful and deadly machines. AN ATV is NOT A TOY - its a powerful vehicle that deserves respect.

To all the families out there who have had kids killed or injured on ATVs - our thoughts and prayers are with you.

Kim Smith

[http://www.atvsafetynet.org/stories\\_wodzinski.html](http://www.atvsafetynet.org/stories_wodzinski.html)

Anthony Paul Wodzinski

My name is Natalie Camp and I lost my only son on June 10, 2006 due to an ATV accident. He was just 15 years old. I had sent my two children to their dad's for a couple of weeks during the summer for visitation. My precious son did not come home.

While at his dad's he went to visit a friend who owned 4-wheelers. The parents were gone and the 15 year old girl gave him the key and let him ride off alone, without a helmet. He rode over 5 miles alone down lonely country roads.

As he was riding alone, no one really knows what happened, but the best guess of the investigator was that he was riding down the side of the road and for some reason lost control of the 4-wheeler going over the edge of a 20 foot ravine. He actually rode the 4-wheeler all the way to the bottom safe and sound. But then he hit a cement pipe running under the road that was overgrown with weeds and was thrown from the 4-wheeler.

He lay there at the bottom of that ravine for almost an hour before being found. He was transported to the ER, and I made the two hour ride to get to him. I was told when I got there that he was in grave condition and had coded 3 times after they found him. It took them almost 30 minutes one time to get him back. He was then airlifted to the closest trauma unit and again, I raced to be with him, praying that he did not die in a helicopter full of strangers.

I made it and we had to wait forever to find out anything. Finally a doctor told us that he was in very grave condition as he had a neck fracture, his spinal column was destroyed in several places leaving him paralyzed from the waist down. And then, there was the head injury and facial fractures.

I walked with my baby up to PICU, holding his hand, telling him I was there and we would make him all better. He opened one eye and squeezed my hand. I had to wait for them to get him settled and was finally allowed to see him. He was hooked up to dozens of machines. He looked so peaceful, like he was sleeping. You could not tell he was injured at all, much less as severely as they were talking.

Anthony never opened his eyes again, never responded to us again. We were told that he had swelling on the brain, so they put in an ICP (inter cranial pressure) monitor. I watched those numbers for 3 days, I hardly slept, did not eat, just prayed, touched and talked to him. I was watching my son slowly pull away from us and enter the arms of Jesus.

On Saturday, his ICP was 135, normal is under 13. They did a test and he was pronounced brain dead. That day was the worst day of my life. I had to leave my precious son in that hospital and go home without him, after I told him that I would not leave him, that he would get better.

Since that time, I have lived my life in desperation, fear and confusion. There is no one that can help me, no one to bring him back.

Anthony had ridden ATVs since he was 4 years old, raced go-carts, 4-wheelers, bikes, everything. He was getting reckless on his, so I did the responsible thing and took it away. I just wish the mother of that little girl had been responsible too, by locking up the keys or even taking them with her.

Natalie M. Camp



[http://www.atvsafetynet.org/stories\\_kubilus.html](http://www.atvsafetynet.org/stories_kubilus.html)

Tyler Kubilus

There was an empty place on the soccer field when the Lakeland Chiefs played on Tuesday, Sept. 29. That same empty place exists in the hearts and minds of those who knew Tyler Kubilus, 15, of Dalton, who died in an ATV accident on Saturday, Sept. 26. Kubilus, who was wearing a helmet at the time, was killed when the ATV he was driving hit a bridge guard rail on Opeil Road in Greenfield Township, according to Chief Paul Fortuner of the Greenfield Township Police Department. The accident occurred on the dirt road at approximately 1 p.m., one-eighth mile north of Route 107 in Tompkinsville, according to Fortuner or Kubes, as his friends called him or Ty man, as his family called him, was a starting midfielder for the Lakeland High School soccer team as well as a track and field athlete. As a tribute to the sophomore, head coach Joe DePasquale elected to send 10 players onto the field to begin Tuesday's competition.



Tyler's mother, Carol Kubilus, remembers her son as "easygoing" and "miraculous." "He always made you laugh and had a smile on his face," Carol said. According to his mother, Kubilus enjoyed being outdoors. He was an avid fisherman, hunter and camper. He also loved riding on his quad and being with friends. He also enjoyed family trips to the beach that included his father Eugene and older brother Justin. Kubilus' favorite was Ocean City, Md. "He was a great kid," Carol said. "He was a big part of my life and I'm going to miss him." At school, Kubilus was a member of a tight-knit soccer team that often spent time outside of the game together.

"Myself, along with the entire soccer program, are extremely sorry for the family's loss," DePasquale said. DePasquale said in the time since Kubilus' death, many of his teammates and friends have met to reminisce. On Monday, many of the team members sported shirts that featured Kubilus' nickname, "Kubes" on the front and "never forget No. 3," Kubilus' jersey number, on the back. One of many students grieving at Lakeland is Kubilus' best friend, Jim Germain, 15. The two met in cub scouts and grew closer as they grew older, said Germain. Germain described his best friend as "the perfect person," explaining that he loved everyone and worked hard at everything he did.

Germain's biggest point of emphasis was a simple one. "We loved him," he said. Kubilus, Germain, Dave Nicoteri and Mike Striefsky were an inseparable quartet. The four spent nearly every evening this summer hanging around a camp fire and talking. "He would want everyone to live life to the max," Carol said. "That's one thing he was for." The soccer team plans to have armbands with Kubilus' initials and number made. Members will also form a tunnel for his casket to be carried through after the funeral on Thursday, Oct. 1 at St. Gregory Parish, 330 N. Abington Rd., Clarks Green.

# Common Misperceptions about ATV Safety

## **ATVS ON THE ROAD**

### **Common Misperceptions**

#### Misperception #1

There are so many obstacles off the road, that ATVs must be safer on the road.

What we know:

- Although less than half the riding is on the road, more than half the ATV-related deaths are from roadway crashes.
- The severity of crashes and injuries from crashes on the road are worse than from crashes off the road.
- Riders are more likely to suffer a head injury in a roadway crash and the severity of the head injury is likely to be worse than for crashes off the road.

Why is a crash worse on the road than off?

- The simple answer is speed.
- When riding on rough terrain off the road, it is harder to go fast because of obstacles and the shocks and vibrations get more uncomfortable at higher speed.
- People may be more aware that obstacles etc off the road pose a risk and so may ride more safely.
- When riding on the road, it is easier to go fast and the shocks and vibrations are less.
- People may assume that the lack of obstacles and the flatter surface make it safer, and so may travel at unsafe speeds.

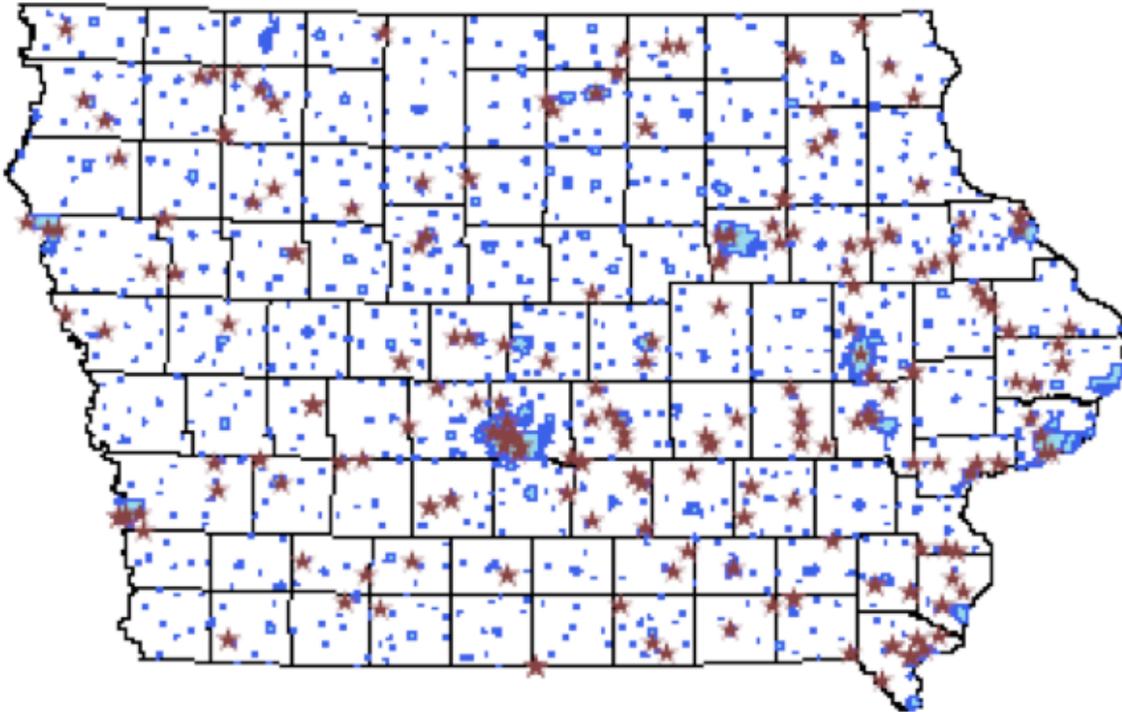
Higher speed equals higher force equals greater injury on the road.

## Misperception #2

If I only ride my ATV on roads way out in the country, I will be safer than riding closer to town.

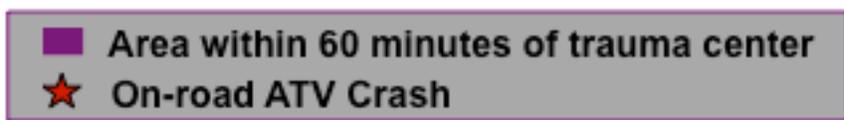
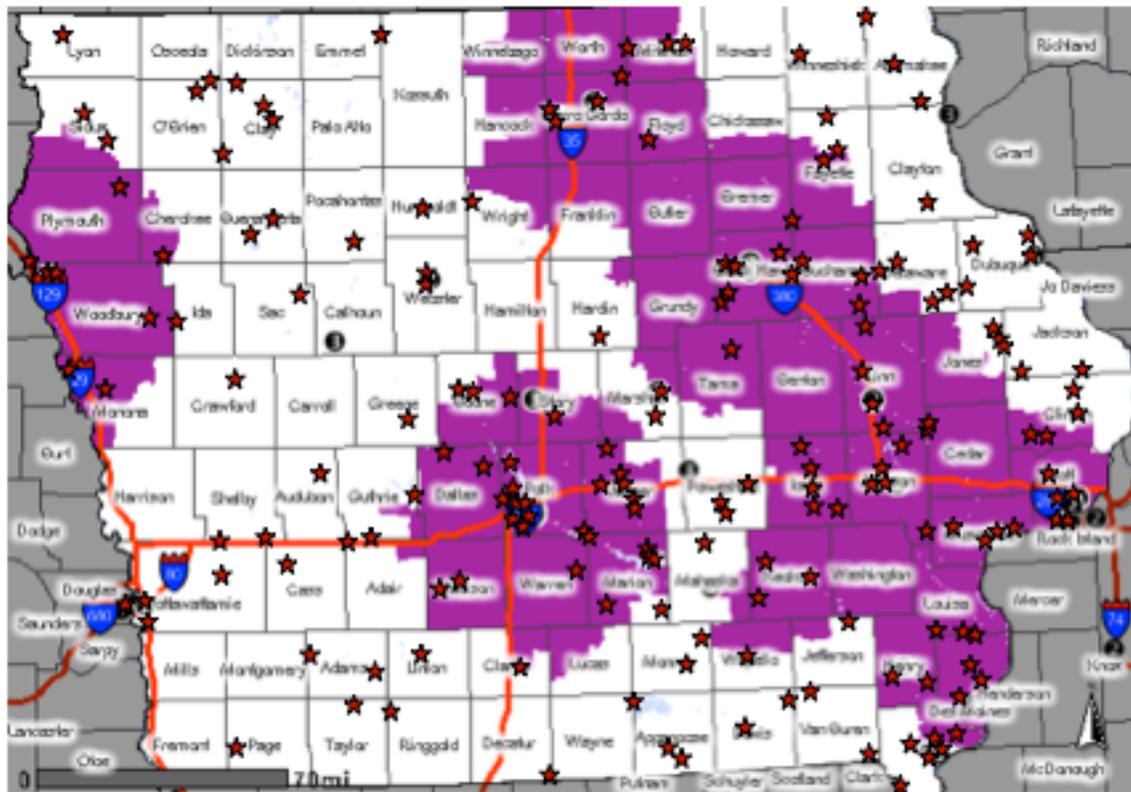
What we know:

- Although collisions account for one-third of ATV crashes, non-collision events (rollovers, falling off the vehicle) account for the other two-thirds of deaths and injuries.
- Loss of control leading to a non-collision event can happen anywhere, including on remote Iowa roads.
- The density of ATV crashes on the road is not that different between more rural and less rural areas. See map.



Iowa DOT data on roadway ATV crashes from 2002-2009. Blue areas are incorporated areas and red stars are crashes.

If a life-threatening crash occurs farther from a trauma center (outside purple area) and it takes longer for emergency medical services to arrive, you are at increased risk of death.



The purple areas were determined by the National Trauma Society and indicate an area where you are within 60 miles (around 60 minutes) from a trauma center. We know that if you receive care within 60 min (Golden Hour) your risk of death is less.

**You are not safer on more rural roads.**

## Selected ATV Safety Issues

## **ATVS ON THE ROAD**

### **Lack of Training is a Risk Factor for Crashes**

ATV safety training by Iowa law:

- 12-15 year olds must complete a safety course and be certified to ride unsupervised on public lands, including in Off-Highway Vehicle (OHV) parks.
- There are currently no safety training or operator training requirements for adult ATV operators.
- Less than 10% of ATV operators have formal ATV safety training.

Safety knowledge and behaviors among youth (4300 Iowa students):

- Less than half knew that Iowa law said only farmers and other workers (law enforcement, utility workers) can ride on Iowa's roads.
- Over 80% report having ridden ATVs on public roads.
- More than half reported three unsafe behaviors (carrying passengers, riding on the road, and not wearing a helmet).
- Almost 60% have been in at least one crash in their lifetime.
- 27% surveyed a year later said they had been in an ATV crash the previous year.

Safety knowledge and behaviors among adults at the Farm Progress Show ():

- About half knew that only farmers and other workers can legally ride on the roads.
- 67% reported riding on public roads.
- 33% had been in at least one crash in their lifetime.

Lack of operator and safety training may contribute to the high rate of deaths and injuries. Most ATV riders don't know Iowa's ATV laws and most engage in one or more unsafe riding behaviors, including riding on public roads. Riding on the road is particularly dangerous and untrained operators may not understand these dangers.

## **ATVS ON THE ROAD**

### **Impossible to Define Safe Speeds**

With respect to ATVs:

- Research suggests that they should not be ridden on the road unless there is a compelling reason to do so.
- There is no such thing as a universal safe speed for ATVs on the road, even for a specific road surface type.
- Maintaining control of the vehicle, particularly on the road, depends on so many factors that it is difficult to train people to do it safely.
- DNR officers routinely crash during training when they are learning to pursue a subject because that involves speeds over 20 mph.
- Different ATV models can have different stabilities at the same speed.

Some examples of the challenges:

- (1) An experienced operator could probably be relatively safe at 30 mph on a paved road, as long as they were travelling in a straight line and there were no bumps or depressions in the road. This does not mean that they would never lose control of the vehicle but rather that they would be better at adjusting speed, shifting their weight, and reacting to unexpected interactions of the ATV tires and the paved surface. 30 mph would probably be quite dangerous for an inexperienced operator because they would not know how to react if unpredictable changes in vehicle stability occurred.

*How could you set a speed limit if safety depends so much on operator experience? If you set a speed limit low enough for inexperienced operators, how likely would it be that people would actually go that speed?*

- (2) Interactions between ATV tires and paved, gravel or dirt roads can be highly unpredictable and many crashes occur

because ATVs are going from one surface type to another, like paved road to gravel road.

*If you set different speed limits for different road types, how would you keep people from going too fast, particularly when they go from one road surface type to another?*

- (3) Making a turn not only depends upon the speed but also upon the turning radius and the relative weight of the ATV and operator. Compared to a larger person, a smaller person on the ATV would have to make the turn slower at a particular turning radius or use a wider turning radius for a particular speed so that the lateral forces on the vehicle's high center of gravity were not too great for them to overcome by shifting their weight.

*How can you set a speed limit for turns when it would depend on the relative size of the ATV and the operator?*

There are highly complex operator-vehicle-environmental interactions when riding on ATVs. This is probably why the crash rate for ATVs is so high and it is so hard to figure out how people can ride ATVs safely. This is doubly hard on the roads where higher speeds come into play.

## **ATVS ON THE ROAD**

### **Teen Drivers of all Vehicles are a Vulnerable Population**

16 and 17 year old ATV operators involved in fatal crashes have the highest proportion of any age group:

- Who crash on the road
- Who are involved in crashes with multiple deaths
- Who are involved in collisions with other vehicles

Operating ATVs requires active riding:

- ATVs require as much or more cognitive and mental maturity as operating passenger vehicles.
- ATVs require as much or more physical maturity as operating passenger vehicles.
- This age range has not reached full physical, mental, and cognitive maturity.
- Males who are teens and young adults are more prone to risk-taking.
- More than 8 out of every ten ATV-related deaths and injuries involve men and boys.

Although teens may fit adult-size ATVs, the larger ATVs are difficult to handle safely and more and more injuries for all age groups are because the victim is hit or pinned under the ATV. A victim can be crushed and asphyxiated by an ATV within minutes.

The young brain is more susceptible to traumatic brain injury, which is among the leading causes of death and disability from ATV crashes.

## **ATVS ON THE ROAD**

### **Alcohol and ATV crashes**

Studies show that:

- 40-50% of all fatal ATV crashes in the U.S. involve alcohol.
- This has been true since ATVs were introduced.
- 20-30% of all non-fatal crashes involve alcohol.
- We found that about one-third of all non-fatal ATV crashes in Iowa that result in serious injury involve alcohol.

Teen operators:

- One out of every 100 (1%) 16 and 17-year old drivers in fatal passenger vehicle crashes were drinking.
- For ATVs, this was 1 out of 5 (20%).

Iowa law prohibits operating ATVs while intoxicated.

- Why are the percentages of intoxicated victims so high despite the law?
- How many operators of ATVs already riding on the road are intoxicated?
- How could enforcement be improved not only to deal effectively with those who violate the law, but also to prevent people from drinking and operating ATVs in the first place?

## **ATVS ON THE ROAD**

### **Respect for Public and Private Property**

Although most ATV riders are responsible people, it has been reported that:

- Some ATV riders do not respect public property, like roadside ditches, and are damaging them.
- Some ATV riders go on private property (trespassing) and tear up lanes and fields (vandalism).

In safety training courses, we teach the importance of respecting other people's property, but most ATV riders never receive training.

If more riders are able to access Iowa's rural roads legally, they will be able to more easily access both public and private lands.

How would limited law enforcement resources be able to protect those lands and rural residents from trespassers?

## **ATVS ON THE ROAD**

### **Liability and Insurance**

Farmers may have a rider on their insurance policy for property damage and injuries that result from agricultural activities, including use of ATVs. Does this cover on-road riding?

Other ATV users might have liability insurance attached to their homes and property.

#### Question:

Keeping in mind that riding on the roads is not an approved use of the vehicle by the manufacturers and the regulatory agencies:

Do these homeowner policies cover liability for ATV users who are riding on the roads for non-essential purposes?

Would insurance companies be willing to create products that cover damage and injuries during unapproved use?

What is the liability to counties or the state if they legalize an activity that is well recognized as being dangerous and is warned against by the manufacturers and the regulatory agencies?

## **ATVS ON THE ROAD**

### **Can We Determine Undue Hazard?**

Iowa law states that:

“The county board of supervisors shall evaluate the traffic conditions on all county highways and designate roadways on which all-terrain vehicles or off-road utility vehicles may be operated for the specified period without unduly interfering with or constituting an undue hazard to conventional motor vehicle traffic.”

Determining what constitutes an undue traffic hazard with respect to ATVs on the road is not possible from an engineering perspective because:

- (1) Traffic research based on other non-highway vehicles such as tractors is not applicable
  - Crash patterns for farm equipment and ATVs are very different.
  - Whereas the vast majority of crashes involving farm equipment are collisions with other forms of transportation (passenger vehicles, bicycles etc), only about one in three of Iowa’s ATV roadway crashes are collisions.
  - Most ATV crashes are rollovers that can occur in the absence of other vehicles.
  - Vehicle dynamics that contribute to crash risk for ATVs and other non-highway vehicles on the road are very different.
- (2) No traffic safety studies have been performed for ATVs.

Using tractor traffic safety studies to determine ATV traffic safety would be the same as using these studies to determine motorcycle or automobile traffic safety.

Thus, from a public health perspective, not all undue hazards to an ATV rider are related to traffic. Not considering the non-traffic hazards will result in overestimating the safety (or underestimating the danger) of ATVs on the roads.

## **ATVS ON THE ROAD**

How do we measure the effects of laws and policies?

A significant challenge associated with preventing ATV-related deaths and injuries is that we don't fully understand the problem.

- We don't know how many Iowans are already riding on the roads, although survey studies suggest the number is high.
- We don't know where Iowans are riding on the road or all the reasons why.
- We don't know the number of deaths and injuries per riding hour on the road (the true rate).
- We don't know where and how well ATV laws are being enforced, including road use laws.

Before we change anything potentially for the better or potentially for the worse, we need the answers to these questions.

Without them, we will have no way to measure the effects and costs or savings of the changes.

# Common Arguments Made in Support of Recreational Riding of ATVs on the Road

## **ATVS ON THE ROAD**

### **Common Arguments**

*I pay taxes, so I have the right to ride my ATV on the road.*

This argument fails to take into account that this has been proven to be a dangerous and costly activity.

Is it valid to argue, “I pay taxes so I have the right to drive my car on the road as fast as I want”?

This argument also fails to acknowledge that the public has a right to protect itself through safety legislation and policy.

Is it valid to argue, “I have the right to drive my car anyway I want to and no one has the right to pass traffic laws”?

We respectfully argue that no one has an inherent right to engage in activities that can endanger themselves and others.

We also respectfully argue that there is a moral responsibility to use safety laws to protect life and health and to reduce the cost of injuries, costs that are shared by all citizens.

*Allowing ATVS on the roads will increase tourism.*

In a recent article from Wisconsin, supporters of allowing ATVs on the roads said that ATV recreation in our country brings in \$300 million each year.

If we assume that is equal for each state, then:  
\$300 million divided by 50 states equals \$6 million per state.

The CDC estimates that one death costs \$8 million.

A study in Connecticut, found that the average cost for ATV crash victims hospitalized for a traumatic brain injury was \$1.3 million.

One death or four such injuries each cost more than \$6 million.

Policy consideration:

Does the potential benefit, people riding on the roads for fun or convenience, outweigh the potential costs?

Shared Goals:  
Partnering Safety and  
Recreational Riding Opportunities

## **ATVS ON THE ROAD**

### **Balancing Economic Development and ATV Safety**

All-terrain vehicles (ATVs) are growing in popularity for recreational purposes. Studies by the Iowa injury prevention experts provide information on the potential benefits and costs of policies related to recreational ATV use.

#### Benefits of OHV parks

Studies comparing crashes outside and inside Iowa's OHV parks suggest that the parks provide a safer place to ride ATVs.

These results include:

- No crash victims under 6 years of age
- Relative to outside the parks, park crashes involve:
  - A lower percentage of youth victims
  - A lower percentage of passenger victims
  - Fewer head injuries and less severe head injuries when they occur

The reasons for the safer environment in the parks likely include:

- Trail design and maintenance
- More effective enforcement of Iowa ATV laws and park regulations, including:
  - No children under 6 allowed to ride
  - Children 6-11 must be supervised by adults at all times
  - Adolescents 12-15 must have safety training to ride unsupervised
  - No carrying of passengers on single-person ATVs
  - No reckless operation
  - Parks closed after dark
  - No alcohol or drugs
  - Helmets required

Helmet use in the parks is over 90% and likely accounts for the lower percentage and less severe nature of head injuries in park crash victims.

Expanding the number of OHV parks and trails in Iowa would be an investment that would pay off in tourism and safety. Additional resources to help monitor the parks in order to promote and maintain safe and responsible riding are also needed. We are currently working with the DNR and OHV Park ATV clubs to identify engineering approaches to make the parks even safer. We are also working with state emergency medical services (EMS) agencies to develop better ways to find and transport park crash victims.

**Summary.** New and existing parks can be a valuable asset to tourism and should be designed, maintained, and monitored in ways that promote safety and injury prevention. Families with children particularly appreciate access to enjoyable and safe recreational opportunities.

## **Join Other Iowans To Prevent ATV-Related Deaths and Injuries**

People across Iowa have created a network dedicated to reducing the number of all-terrain vehicle (ATV)-related deaths and injuries in our state. Our programs combine education, engineering, and law enforcement to promote safe, responsible ATV use among Iowa's families. Our partners include:

### **University of Iowa (UI) Departments and Centers**

UI Children's Hospital: Pediatric Trauma/Surgery and  
Community Outreach and Injury Prevention

UI Hospitals and Clinics: Emergency Medicine and Trauma

UI College of Public Health: Iowa Injury Prevention Research Center

Great Plains Center for Agricultural Health

### **State Departments, Agencies, and Organizations**

Rural Health & Safety Clinic of Greater Johnson County

Iowa Center for Agricultural Health

IA Department of Natural Resources

IA Department of Transportation

IA Department of Public Health

### **Federal Departments and Agencies**

U.S. Army Corps of Engineers

### **Community Groups**

Iowa Brain Injury Alliance

ATV Lakeview Riders Club

Safe Kids of Johnson County

We'd like to acknowledge all of our partners for their generous support. We would especially like to thank Kohl's Department Stores for their generous funding of our Pediatric ATV Injury Prevention Taskforce's community-based efforts through their Kohl's Cares for Kids program

**We invite all interested individuals and groups to join us in  
our efforts to save Iowa families from the tragedy and  
heartbreak of a preventable ATV-related injury.**

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For more information, please send an email to [gerene-denning@uiowa.edu](mailto:gerene-denning@uiowa.edu).

Or if interested in our efforts to protect children, visit our website or contact us at:  
<https://www.uichildrens.org/keepingkidssafe/> Phone: 319-384-6999  
[atvsafety@uiowa.edu](mailto:atvsafety@uiowa.edu)

# Public Policy Brief

# Iowa's ATV Injury Prevention Network

## PUBLIC POLICY BRIEF

### Reducing Deaths and Injuries From Road Use by All-Terrain Vehicles (ATVs)

All-terrain vehicles (ATVs) are getting bigger and faster and are growing in popularity. In Iowa, we use legislation to prevent motor vehicle crashes and to reduce their human and financial toll. ATV road use laws are similarly designed to promote responsible riding and to reduce deaths and injuries.

#### The Design of ATVs Makes Them Dangerous on the Road.

High center of gravity: An ATV's narrow wheelbase and high clearance are designed for riding in pastures, fields and wooded areas. But that high center of gravity increases the risk of rollovers, particularly at roadway speeds. ATV operators must also use a significantly wider turning radius than is typical of intersections on our roads and streets.

Knobby, low-pressure tires: ATV tires allow for operation on a variety of surfaces, but they do not grip roadway surfaces well (paved or unpaved). As tire-surface interactions deteriorate with increasing speed, the operator can lose control of the vehicle, endangering not only the ATV rider but also occupants of other vehicles, pedestrians, and bicyclists.

The Specialty Vehicle Institute of America (SVIA), a not-for-profit association representing ATV manufacturers and dealers, has stated, "SVIA emphasizes that **ATVs are not designed, manufactured, or in any way intended for use on public streets, roads or highways and urges that on-highway use of ATVs be prohibited** and that law enforcement efforts be strengthened to eliminate this dangerous practice."

--SVIA "Position in Opposition to On-road Operation of ATVs," ...2001

#### ATV Crashes Are Deadlier On The Road Than Off.

Researchers at the University of Iowa have found that ATV crashes on streets and roads occur throughout the state, including in Iowa's cities. More than half of all deaths from ATV crashes occur on the roads, both in Iowa and nationwide, and one victim out of four is under the age of sixteen. Their findings also show that:



Over half of all fatal ATV crashes occur on the roads.

Since 1998, deaths from ATV crashes on our roads have been increasing twice as fast as deaths off the road.

More and more fatal crashes have involved larger, heavier ATVs and more deaths have resulted from rollovers where the crash victim was pinned under the ATV.

Fatal crashes on the road were more likely than off-road crashes to involve a collision with another vehicle.

Victims of non-fatal ATV crashes on Iowa's roads suffered more severe traumas than off-road victims, including more life-threatening traumatic brain injuries (TBI). Over half of these trauma victims were 25 years of age or younger, demonstrating that riding ATVs on the road is a serious threat to the health of our young.

## **Our Children Are At High Risk For Injury.**

A school-based survey of over 4,600 Iowa's students found that more than three out of four have ridden on an ATV. Among those riders, eight out of ten reported riding on public roads. Students who reported riding on public roads were over four times more likely to report having been in a crash.

## **Many Iowans are not familiar with ATV laws or why ATVs are dangerous on the road.**

No operator or safety training is required for adult ATV riders, and only a small percentage of youth receive safety training. Surveys of Iowa physicians and other primary care providers and of schoolchildren show that most do not know it is against Iowa law to ride ATVs recreationally on the road. Other research indicates that many ATV users are also unaware of the specific dangers of riding on the road—some falsely believe it is safer to ride on the road than off.

## **Iowans need information to make local policy.**

In Iowa, we balance the hazards of roadway use with the needs of our farm families (for example, state law allows farmers to drive their equipment on the roads from field to field). Iowa law allows cities and counties to expand ATV road use, however, our research shows that Iowans may not fully understand the public health impact and heavy economic costs of more ATV users on the road.

## **How Should This Information Guide Iowa's Public Policies Related To ATV Road Use?**

A statewide public awareness campaign is needed to inform ATV users, enforcement agencies, and the general public about Iowa's ATV road use laws and the serious dangers of riding ATVs on the roads.

Public policy makers should consider the potential costs, both human and financial, of expanding recreational ATV road use and base policy decisions on evidence from ATV safety and injury prevention research.

*If we have the power through our words or our deeds to protect life and promote health, then we have the moral responsibility to do so.*

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